

For information on
29 March 2016

**LEGISLATIVE COUNCIL
PANEL ON ENVIRONMENTAL AFFAIRS**

Updating the PATH Air Quality Modelling System

PURPOSE

This paper informs Members of the completion in the updating of the “Pollutants in the Atmosphere and their Transport over Hong Kong” (PATH) air quality modelling system.

BACKGROUND

2. On 28 June 2013, we briefed the Subcommittee on Issues Relating to Air, Noise and Light Pollution of this Panel (the Subcommittee) about the air quality modelling practices adopted in Hong Kong and the PATH model, which was released in 2000. The PATH model is designed to simulate air quality over the whole Pearl River Delta region including Hong Kong.

3. In its report (LC Paper No. CB(1)1003/13-14(01) issued on 27 February 2014) the Subcommittee recommended us to –

- (a) take effective measures to enhance the transparency of Hong Kong's air quality modelling systems, including the data and assumptions used; and
- (b) proactively engage the academic sector and other stakeholders in the further development of air quality modelling and the enhancement of PATH, including expeditiously setting up a working group comprising academics and experts in the field to review the air quality modelling systems in Hong Kong.

4. The Administration had subsequently responded, among others, to the Subcommittee's recommendations in “Administration's Response to the Report of the Subcommittee on Issues Relating to Air, Noise and Light Pollution” (CB(1)1785/13-14(05) issued on 17 July 2014) that –

- (a) the relevant data and assumptions have been put on Environmental Protection Department (EPD)'s website for public access; and
- (b) EPD had a meeting with academics on 12 June 2014. The meeting also agreed that a working group would be set up to review the air quality modelling systems in Hong Kong by September 2014.

THE LATEST PROGRESS

5. A Working Group had been set up to review the air quality modelling system and had its first meeting on 4 August 2014. Its Terms of Reference and membership are at **Annex**.

6. The Working Group held four meetings from December 2014 to October 2015 to review the performance of PATH, it also had extensive discussions on a wide range of technical issues relating to updating the PATH model including model formulation and validation, presentation of results for compliance analysis, domain size, refinement approach and the performance of the updated PATH. The updated PATH model is named as 'PATH-2016'. The Working Group also suggested that the land use data adopted in the model should be updated with the latest information for further improvement of the meteorological simulation results.

7. Taking account of the suggestions of the Working Group, we completed the updating of the PATH model and its land use data in October 2015. We reported the outcome to the Working Group on 30 October 2015. The Working Group concluded that PATH-2016 is adequate for simulating the background air quality for the Pearl River Delta Region and recommended its use in Environmental Impact Assessment (EIA) over the old version in consideration of its incorporation of the latest developments in the field of air quality science, refined calculation algorithm and validation with more recent air quality measurement results.

8. The Working Group also considered it necessary to get the stakeholders well prepared before the formal release of PATH-2016. Two briefing sessions for EIA consultants, relevant stakeholders from private and public sectors, as well as government departments were thus held in early December 2015. PATH-2016 was then rolled out in January 2016 with the relevant program, data, results and tools as well as modelling guidelines published on EPD's webpage.

9. For EIA studies commenced before the release of PATH-2016, the project proponents were informed in December 2015 about the release of PATH-2016 and a 6-month period with effect from 4 January 2016 will be allowed for project proponents and their study teams to adapt to the updated

model version so as to reduce abortive work. During this transition period, EIA reports submitted under the Environmental Impact Assessment Ordinance (Cap.499), may continue to use the previous model version for the air quality assessment. After the 6-month transitional period, all EIA reports must use the updated PATH-2016 version. EPD will not accept any EIA report adopting the old model version in respect of the air quality assessment after 3 July 2016.

WAY FORWARD

10. After taking into account the current state of the PATH-2016, the technical complexity of the updating work and the international development in air quality modelling, the Working Group has also recommended PATH-2016 to be updated every five years with the latest land use, meteorological and emission information. EPD has accepted this recommendation. As such, we will start the scoping exercise for the next update to PATH-2016 in 2016 with a view to making preparation for the commencement of updating exercise in 2017.

Environment Protection Department
March 2016

Annex

**Working Group on Application of Numerical Models to
Environmental Impact Assessment in Hong Kong**

Terms of Reference

1. To review the adequacy and robustness of Environmental Protection Department (EPD)'s air quality modelling approach and modelling tools adopted for Environmental Impact Assessment (EIA);
2. To advise and endorse further improvements on the air quality modelling approach and modelling tools when and where necessary; and
3. To explain to the public the basis of the adopted air quality modelling approach and modelling tools for EIA when and where necessary.

Membership (in alphabetical order)

Professor Jimmy Fung, Hong Kong University of Science and Technology
Dr KS Lam, Associate Professor, Hong Kong Polytechnic University
Dr Nicky Lam, Assistant Professor, City University of Hong Kong
Professor Alexis Lau, Hong Kong University of Science and Technology
Professor Dennis Leung, University of Hong Kong
Professor Tao Wang, Hong Kong Polytechnic University
Dr Steve Yim, Assistant Professor, Chinese University of Hong Kong
Dr Wen Zhou, Associate Professor, City University of Hong Kong
Representative(s) of EPD